

University of Nebraska - Lincoln

## DigitalCommons@University of Nebraska - Lincoln

---

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

---


1999

### Nebraska Summary: S348 New Holland TL80

Nebraska Tractor Test Laboratory

*University of Nebraska-Lincoln*, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>

 Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

---

Laboratory, Nebraska Tractor Test, "Nebraska Summary: S348 New Holland TL80" (1999). *Nebraska Tractor Tests*. 2829.

<https://digitalcommons.unl.edu/tractormuseumlit/2829>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

# SUMMARY OF OECD TESTS 1910 and 1911—NEBRASKA SUMMARY 348

## NEW HOLLAND TL 80 DIESEL

### 24 SPEED

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed (PTO speed 613 rpm)					
68.0 (50.7)	2496	4.21 (15.94)	0.434 (0.264)	16.14 (3.18)	
Maximum Power (2 hours)					
68.1 (50.8)	2455	4.19 (15.86)	0.431 (0.262)	16.24 (3.20)	
Standard Power Take-off speed (541 rpm)					
66.0 (49.2)	2203	3.88 (14.70)	0.413 (0.251)	17.00 (3.35)	
VARYING POWER AND FUEL CONSUMPTION					
68.0 (50.7)	2496	4.21 (15.94)	0.434 (0.264)	16.14 (3.18)	Air temperature
59.4 (44.3)	2569	3.70 (14.01)	0.437 (0.266)	16.04 (3.16)	77°F (25°C)
44.9 (33.5)	2598	2.97 (11.23)	0.464 (0.282)	15.13 (2.98)	Relative humidity
30.5 (22.7)	2638	2.37 (8.98)	0.546 (0.332)	12.84 (2.53)	35%
15.4 (11.5)	2691	1.79 (6.77)	0.814 (0.495)	8.63 (1.70)	Barometer
--	2728	1.27 (4.82)	--	--	29.1" Hg (98.6 kPa)
--			--	--	
Maximum Torque -188.4 lb.-ft. (255.4 Nm) at 1254 rpm					
Maximum Torque Rise -31.6%					
Torque rise at 2000 engine rpm -15%					

**Location of Test:** Istituto Per La Meccanizzazione Agricola (IMA) Strada delle Cacce, 73-10135 Torino, Italy

**Dates of Test:** April - December, 1999

**Manufacturer:** New Holland Italia S.p.A., Viale delle Nazioni, 55-41100, Modena, Italy and New Holland UK Limited, Cranes Farm Road Basildon, Essex, United Kingdom

**FUEL and OIL :** Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F (15°/15°C)** 0.842 **Fuel weight** 7.01 lbs/gal (0.840 kg/l) **Oil** SAE 15W40 **API service classification** CF-4 **Oil consumption for 10 hours** 0.02 lb (8 gm) **Transmission and hydraulic lubricant** Ambra Multi G **Front axle lubricant** Ambra Multi G

**ENGINE:** Make New Holland Diesel **Type** four cylinder vertical **Serial No.** 513-553077 **Crankshaft** lengthwise **Rated Engine speed** 2500 **Bore and stroke** 4.094" x 4.528" (104 mm x 115 mm) **Compression ratio** 16.5 to 1 **Displacement** 238 cu in (3908 ml) **Starting system** 12 volt **Lubrication pressure** **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** thermostat

**CHASSIS:** **Type** 2WD and front wheel assist **Serial No.** 00110503 **Tread width** rear 60.1" (1526 mm) to 84.2" (2138 mm) front: 2WD - 55.8" (1417 mm) to 84.7" (2152 mm), FWA - 51.4" (1305 mm) to 79.3" (2014 mm) **Wheel base** 2WD - 92.2" (2342 mm) FWA - 91.1" (2314 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph (km/h)** first 0.92 (1.47) second 1.04 (1.68) third 1.33 (2.14) fourth 1.51 (2.44) fifth 1.92 (3.09) sixth 2.14 (3.44) seventh 2.18 (3.51) eighth 2.43 (3.92) ninth 2.75 (4.42) tenth 3.11 (5.00) eleventh 3.13 (5.03) twelfth 3.54 (5.70) thirteenth 4.48 (7.21) fourteenth 5.03 (8.10) fifteenth 5.10 (8.21) sixteenth 5.73 (9.22) seventeenth 6.42 (10.32) eighteenth 7.31 (11.72) nineteenth 7.31 (11.77) twentieth 8.33 (13.41) twenty-first 10.54 (16.97) twenty-second 12.01 (19.32) twenty-third 15.10 (24.31) twenty-fourth 17.20 (27.68) reverse 1.02 (1.65), 1.49 (2.40), 2.15 (3.46), 2.39 (3.85), 3.08 (4.95), 3.48 (5.60), 5.01 (8.07), 5.63 (9.07), 7.18 (11.56), 8.19 (13.18), 11.81 (19.00), 16.91 (27.22) **Clutch** dual dry disc operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic

# DRAWBAR PERFORMANCE

## BALLASTED - FRONT DRIVE ENGAGED

### FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F cool- ing med	°C Air dry bulb	Barom. inch. Hg (kPa)
75% of Pull at Maximum Power Five Hours 14th (1F Lo) Gear									
42.5 (31.7)	3130 (13.93)	5.10 (8.20)	2585	2.2	0.567 (0.345)	12.33 (2.43)	175 (79)	55 (13)	29.1 (98.6)
MAXIMUM POWER IN SELECTED GEARS									
7th (3S Hi) Gear									
46.5 (34.7)	9195 (40.91)	1.90 (3.05)	2557	15.1	0.597 (0.363)	11.73 (2.31)	174 (79)	55 (13)	29.1 (98.6)
8th (1M Hi) Gear									
50.7 (37.8)	8745 (38.90)	2.17 (3.50)	2500	10.8	0.569 (0.346)	12.28 (2.42)	174 (79)	55 (13)	29.1 (98.6)
9th (4S Lo) Gear									
52.7 (39.3)	7720 (34.34)	2.56 (4.12)	2500	7.1	0.538 (0.327)	13.05 (2.57)	174 (79)	55 (13)	29.1 (98.6)
10th (2M Lo) Gear									
53.9 (40.2)	6905 (30.71)	2.93 (4.72)	2500	5.6	0.529 (0.322)	13.25 (2.61)	176 (80)	55 (13)	29.1 (98.6)
11th (4S Hi) Gear									
53.5 (39.9)	6725 (29.92)	2.98 (4.79)	2500	5.5	0.539 (0.328)	12.99 (2.56)	174 (79)	55 (13)	29.1 (98.6)
12th (2M Hi) Gear									
54.0 (40.3)	5985 (26.63)	3.38 (5.44)	2500	4.8	0.533 (0.324)	13.20 (2.60)	175 (79)	55 (13)	29.1 (98.6)
13th (3M Lo) Gear									
54.2 (40.4)	4720 (20.99)	4.31 (6.93)	2500	3.3	0.531 (0.323)	13.20 (2.60)	175 (80)	55 (13)	29.1 (98.6)
14th (1F Lo) Gear									
54.8 (40.9)	4225 (18.79)	4.86 (7.83)	2500	2.9	0.523 (0.318)	13.45 (2.65)	175 (79)	55 (13)	29.1 (98.6)
15th (3M Hi) Gear									
53.6 (40.0)	4045 (18.00)	4.97 (8.00)	2500	2.8	0.538 (0.327)	13.05 (2.57)	174 (79)	55 (13)	29.1 (98.6)
16th (1F Hi) Gear									
53.8 (40.1)	3615 (16.09)	5.58 (8.97)	2500	2.3	0.544 (0.331)	12.89 (2.54)	174 (79)	55 (13)	29.1 (98.6)
17th (4M Lo) Gear									
52.0 (38.8)	3110 (13.83)	6.27 (10.10)	2500	2.0	0.556 (0.338)	12.59 (2.48)	174 (79)	55 (13)	29.1 (98.6)
18th (2F Lo) Gear									
52.8 (39.4)	2755 (12.26)	7.18 (11.55)	2500	1.8	0.551 (0.335)	12.74 (2.51)	173 (78)	55 (13)	29.1 (98.6)
19th (4M Hi) Gear									
50.2 (37.5)	2615 (11.62)	7.21 (11.60)	2500	1.6	0.579 (0.352)	12.13 (2.39)	174 (79)	55 (13)	29.1 (98.6)
20th (2F Hi) Gear									
49.8 (37.1)	2260 (10.06)	8.26 (13.30)	2500	1.4	0.589 (0.358)	11.93 (2.35)	174 (79)	55 (13)	29.1 (98.6)

**Power take-off** 540 rpm at 2199 engine rpm or 1000 rpm at 2381 engine rpm **Unladen tractor mass** 2WD - 7660 lb (3475 kg), FWA - 8245 lb (3740 kg)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD test procedures. The performance results on this summary were taken from OECD tests conducted under the Code I Test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Reports No. **1910** and **1911**, Nebraska Summary 348, January 10, 2001.

Brent T. Sampson  
Test Engineer

L.L. Bashford  
M.F. Kocher  
R.D. Grisso, Jr.  
Board of Tractor Test Engineers

## TL 80- FWA

<b>TIRES, BALLAST AND WEIGHT</b>		<b>With Ballast</b>	<b>Without Ballast</b>
<b>Rear Tires</b>	-No., size, ply & psi (kPa)	Two 480/70R30; **,13 (90)	Two 480/70R30; **,13 (90)
<b>Ballast</b>	-Liquid (total)	None	None
	-Cast Iron (total)	440 lb (200 kg)	None
<b>Front Tires</b>	-No., size, ply & psi (kPa)	Two 320/70R24; **,23 (160)	Two 320/70R24; **,23 (160)
<b>Ballast</b>	-Liquid (total)	None	None
	-Cast Iron (total)	1050 lb (475 kg)	None
<b>Height of Drawbar</b>		16.9 in (430 mm)	16.9 in (430 mm)
<b>Static Weight with Operator - Rear</b>		5425 lb (2460 kg)	4985 lb (2260 kg)
- Front		4475 lb (2030 kg)	3425 lb (1555 kg)
- Total		9900 lb (4490 kg)	8410 lb (3815 kg)

DRAWBAR PERFORMANCE									
BALLASTED - 2WD									
FUEL CONSUMPTION CHARACTERISTICS									
Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption		Temp.°F (°C)		Barom. inch Hg (kPa)
75% of Pull at Maximum Power					Five Hours 14th (1F Lo) Gear				
43.3 (32.3)	3275 (14.57)	4.96 (7.99)	2580	3.8	0.541 (0.329)	12.94 (2.55)	188 (87)	55 (13)	29.1 (98.6)
MAXIMUM POWER IN SELECTED GEARS									
11th (4S Hi) Gear									
47.9 (35.7)	6680 (29.72)	2.69 (4.32)	2555	15.1	0.587 (0.357)	11.93 (2.35)	180 (82)	55 (13)	29.1 (98.6)
12th (2M Hi) Gear									
52.2 (38.9)	6175 (27.47)	3.17 (5.10)	2500	9.5	0.544 (0.331)	12.89 (2.54)	181 (83)	55 (13)	29.1 (98.6)
13th (3M Lo) Gear									
54.3 (40.5)	4850 (21.58)	4.20 (6.76)	2500	5.4	0.539 (0.328)	12.99 (2.56)	182 (84)	55 (13)	29.1 (98.6)
14th (1F Lo) Gear									
55.4 (41.3)	4355 (19.37)	4.77 (7.68)	2500	4.7	0.508 (0.309)	13.81 (2.72)	185 (85)	55 (13)	29.1 (98.6)
15th (3M Hi) Gear									
53.5 (39.9)	4125 (18.34)	4.86 (7.82)	2500	4.4	0.541 (0.329)	12.99 (2.56)	185 (85)	55 (13)	29.1 (98.6)
16th (1F Hi) Gear									
54.1 (40.4)	3725 (16.58)	5.45 (8.76)	2500	4.0	0.528 (0.321)	13.25 (2.61)	187 (86)	55 (13)	29.1 (98.6)
17th (4M Lo) Gear									
53.4 (39.8)	3285 (14.62)	6.10 (9.81)	2500	3.5	0.533 (0.324)	13.15 (2.59)	187 (86)	55 (13)	29.1 (98.6)
18th (2F Lo) Gear									
54.1 (40.4)	2865 (12.75)	7.08 (11.40)	2500	2.9	0.533 (0.324)	13.20 (2.60)	187 (86)	55 (13)	29.1 (98.6)
19th (4M Hi) Gear									
52.6 (39.2)	2790 (12.41)	7.07 (11.37)	2500	2.8	0.547 (0.333)	12.79 (2.52)	188 (87)	55 (13)	29.1 (98.6)
20th (4F Hi) Gear									
52.3 (39.0)	2415 (10.74)	8.12 (13.06)	2500	2.4	0.554 (0.337)	12.64 (2.49)	189 (87)	55 (13)	29.1 (98.6)

TL 80-2WD			
TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	-No., size, ply & psi ( <i>kPa</i> )	Two 480/70R30; **,13 ( <i>90</i> )	Two 480/70R30; **,13 ( <i>90</i> )
Ballast	-Liquid (total)	None	None
	-Cast Iron (total)	440 lb ( <i>200 kg</i> )	None
Front Tires	-No., size, ply & psi ( <i>kPa</i> )	Two 7.50-16; 8;36 ( <i>250</i> )	Two 7.50-16; 8;36 ( <i>250</i> )
Ballast	-Liquid (total)	None	None
	-Cast Iron (total)	1050 lb ( <i>475 kg</i> )	None
Height of Drawbar		29.5 in ( <i>750 mm</i> )	28.7 in ( <i>730 mm</i> )
Static Weight with Operator - Rear		5590 lb ( <i>2535 kg</i> )	5150 lb ( <i>2335 kg</i> )
- Front		3725 lb ( <i>1690 kg</i> )	2675 lb ( <i>1215 kg</i> )
- Total		9315 lb ( <i>4225 kg</i> )	7825 lb ( <i>3550 kg</i> )

TRACTOR SOUND LEVEL WITH CAB	FWA dB(A)	2WD dB(A)
At no load in 13th (3M Lo) gear	77.5	77.5
Bystander in 24th (4F Hi) gear	84.9	86.8

#### CENTER OF GRAVITY - 2WD

Horizontal distance forward from centerline of rear wheels	31.5" (800 mm)
Vertical distance above roadway	33.3" (845 mm)
Horizontal distance from center of rear wheel tread	0" (0 mm) to the left/right

#### CENTER OF GRAVITY - FWA

Horizontal distance forward from centerline of rear wheels	37.2" (945 mm)
Vertical distance above roadway	32.7" (830 mm)
Horizontal distance from center of rear wheel tread	0.5" (13 mm) to the left

#### TURNING ON A CONCRETE SURFACE (2WD)

Turning radius with brake applied right 136" (3.45 m) left 132" (3.35 m)	
without brake right 152" (3.85 m) left 148" (3.75 m)	
Turning space radius with brake applied right 142" (3.60 m) left 138" (3.50 m)	
without brake right 157" (4.00 m) left 154" (3.90 m)	

#### TURNING ON A CONCRETE SURFACE (FWA)

Turning radius with brake applied right 181" (4.60 m) left 173" (4.40 m)	
without brake right 224" (5.70 m) left 217" (5.50 m)	
Turning space radius with brake applied right 185" (4.70 m) left 177" (4.50 m)	
without brake right 228" (5.80 m) left 220" (5.60 m)	

#### THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum Force Exerted Through Whole Range:	3275 lbs (14.6 kN)
i) Opening pressure of relief valve:	NA
Sustained pressure with relief valve open:	2900 psi (200 bar)
ii) Pump delivery rate at minimum pressure:	14.8 GPM (56.0 l/min)
iii) Pump delivery rate at maximum	
hydraulic power:	10.6 GPM (40.2 l/min)
Delivery pressure:	2525 psi (174 bar)
Power:	15.6 HP (11.6 kW)

#### THREE POINT HITCH PERFORMANCE (SAE Static Test)

Observed Maximum Pressure psi.(bar)	2970 (205)
Location:	hydraulic pump
Hydraulic oil temperature: °F (°C)	144 (62)
Location:	hydraulic sump
Category:	II
Quick attach:	none

System pressure 2675 psi (184 Bar)

Hitch point distance to ground level in. (mm)	8.0 (203)	15.0 (381)	22.0 (559)	29.0 (737)	36.0 (914)
Lift force on frame lb	8442	7817	7371	7313	6597
" " " " " (kN)	(37.5)	(34.8)	(32.8)	(32.5)	(29.3)

#### SAE TEST

	inch	mm	inch	mm
A	27.0	686	27.8	705
B	10.0	255	10.0	255
C	13.0	329	13.0	329
D	11.8	300	11.8	300
E	13.2	335	10.0	255
F	8.1	205	8.1	205
G	29.3	745	27.4	695
H	0.6	15	0.6	15
I	15.7	400	15.7	400
J	21.2	540	19.3	490
K	21.2	540	18.3	465
L	43.3	1100	43.3	1100
M	21.7	550	21.7	550
N	38.0	965	38.0	965
O	8.0	203	7.9	200
P	40.2	1021	43.3	1100
Q	34.2	870	35.0	890
R	25.8	654	22.4	570

#### OECD TEST

#### HITCH DIMENSIONS AS TESTED NO LOAD

